

### Patent Claims

1. Device for simultaneously detecting radiation of different wavelengths, having a number of base modules (18, 20, 22) arranged one above the other, an optical  
5 module with an objective (16) and an electronic module (26) with light-detecting elements, wherein a device (84, 86) is provided in each base module (18, 20, 22) for reflecting or deflecting radiation of a predetermined wavelength range, and the light-detecting elements each  
10 correspond to one of the devices (84, 86).
2. Device according to claim 1, wherein the base modules (18, 20, 22) are arranged rotated at a specific angle from one another to correspond to the light-  
15 detecting elements.
3. Device according to claim 1 or 2, wherein at least one light-emitting element is provided in the electronic module (26).  
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4. Device according to claim 3, wherein the light-emitting and light-detecting elements are arranged on printed circuit boards (28, 30).
- 25 5. Device according to one of claims 1 to 4, wherein additionally a filter module (24) is provided.
6. Device according to one of claims 1 to 5, wherein shutters are provided.  
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7. Base module with a first bore (62) arranged coaxially with the central axis of the base module (18, 20, 22) and a number of other bores (64, 66, 68) arranged rotationally symmetrically to the first bore (62), the  
35 first bore (62) being provided to receive a beam splitter

(84) and one of the other bores (64, 66, 68) being provided to receive another reflecting element (84, 86).

8. Base module according to claim 7, wherein the additional reflecting element (84, 86) is a beam splitter (84).

9. Base module according to claim 7, wherein the additional reflecting element (84, 86) is a mirror (86).

10. Base module according to one of claims 7 to 9, wherein the beam splitter (84) and the additional reflecting element (84, 86) are arranged substantially parallel to one another.

11. Base module according to one of claims 7 to 10, wherein the central bore (62) and at least one of the other bores (64, 66, 68) have cylindrical recesses (65, 67, 69) arranged at an angle of  $45^\circ$ , the diameter of which corresponds to the marginal dimensions of beam splitters (84) and reflecting elements (84, 86) which are to be inserted.

12. Base module according to one of claims 7 to 11, wherein the other bores (64, 66, 68) are arranged equidistantly from one another.

13. Base module according to one of claims 7 to 12, wherein the other bores (64, 66, 68) and the central bore (62) have the same diameter.

14. Base module according to one of claims 7 to 13, which is constructed as a board (60) with a round outline.

15. Base module according to one of claims 7 to 14, wherein pin bores (70) are provided in surfaces which adjoin one another on adjacent base modules (18, 20, 22).
- 5 16. Charging unit for a device according to one of claims 1 to 6, with a charger and a communication module.
17. Process for adjusting a device (10) according to one of claims 1 to 6, wherein focussing is carried out in  
10 order to adjust the device (10).
18. Process according to claim 17, wherein the adjustment is made by varying the distance between the device (10) and the object which is to be measured, by  
15 measuring the distance while it is being changed and determining the appropriate distance by means of the pattern of the data measured, as a function of the distance.
- 20 19. Use of a device (10) according to one of claims 1 to 6 for measuring substances native to the body by detecting them in the human eye.

Captions to the drawings:

Figure 1:

- 5 Handmessgerät mit Batteriebetrieb = battery-operated  
hand-held measuring device

Datenverarbeitungssystem = data processing system

- 10 Lade/Kommunikations-Station = charging/communication  
station

- Standard Kommunikationsschnittstelle (RS232, Netzwerk,  
Bluetooth, Infrarot, USB) = standard communications  
15 interface (RS232, network, Bluetooth, infra-red, USB)

Figure 2:

- Batterie Modul = battery module  
Elektronik Modul = electronic module  
20 Filter Modul = filter module  
Strahlteiler Modul = beam splitter module  
Optik Modul = optical module  
Leiterplatte = printed circuit board  
Auge = eye  
25 Objektiv = objective

Figure 3:

- Referenz = reference  
Anregung Substanz = excitation substance  
30 Emission Substanz = emission substance  
Strahlteiler Modul = beam splitter module  
Wellenlänge = wavelength

Figure 4:

- 35 Strahlteiler Modul = beam splitter module  
Filter Modul = filter module

Batterie Modul = battery module  
Elektronik Modul = electronic module  
Filter Modul = filter module  
Strahlteiler Modul = beam splitter module  
5 Optik Modul = optical module  
Auge = eye  
Strahlengang = optical path  
Emission Substanz = emission substance  
Spiegel = mirror

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Figure 5:

LED1 fur Anregung Substanz 1 = LED1 for excitation  
substance 1  
15 LED1 fur Anregung Substanz 2 = LED1 for excitation  
substance 2  
Photodiode fur Messung der Emission Substanz 1 =  
photodiode for measuring the emission substance 1  
Photodiode fur Messung der Emission Substanz 2 =  
20 photodiode for measuring the emission substance 2  
Verstarker = amplifier  
Tiefpass = low pass  
AD-Wandler - analogue-to-digital converter  
Starttaste = start key  
25 Schnittstelle Lade/Kommunikations-Station = interface  
charger/communications station  
Lock In Verstarker = lock in amplifier